



DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 25

[Docket No. FAA-2023-2251; Notice No. 25-23-05-SC]

Special Conditions: Aerocon Engineering Company, Airbus Model A330-300 Series Airplane; Lower Deck Crew Rest Compartment Installation.

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice of proposed special conditions.

SUMMARY: This action proposes special conditions for the Airbus Model A330-300 series airplane. This airplane as modified by Aerocon Engineering Company (Aerocon) will have a novel or unusual design feature when compared to the state of technology envisioned in the airworthiness standards for transport category airplanes. This design feature is an installation of a lower deck crew rest compartment (LDCRC) under the passenger cabin floor in the cargo compartment. The applicable airworthiness regulations do not contain adequate or appropriate safety standards for this design feature. These proposed special conditions contain the additional safety standards that the Administrator considers necessary to establish a level of safety equivalent to that established by the existing airworthiness standards.

DATES: Send comments on or before [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

ADDRESSES: Send comments identified by Docket No. FAA-2023-2251 using any of the following methods:

Federal eRegulations Portal: Go to www.regulations.gov and follow the online instructions for sending your comments electronically.

Mail: Send comments to Docket Operations, M-30, U.S. Department of Transportation (DOT), 1200 New Jersey Avenue, SE, Room W12-140, West Building Ground Floor, Washington, DC, 20590-0001.

Hand Delivery or Courier: Take comments to Docket Operations in Room W12-140 of the West Building Ground Floor at 1200 New Jersey Avenue, SE, Washington, DC, between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

Fax: Fax comments to Docket Operations at 202-493-2251.

Docket: Background documents or comments received may be read at www.regulations.gov at any time. Follow the online instructions for accessing the docket or go to Docket Operations in Room W12-140 of the West Building Ground Floor at 1200 New Jersey Avenue, SE, Washington, DC, between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

FOR FURTHER INFORMATION CONTACT: Daniel Jacquet, Cabin Safety, AIR-624, Technical Policy Branch, Policy and Standards Division, Aircraft Certification Service, Federal Aviation Administration, 2200 South 216th Street, Des Moines, Washington 98198; telephone and fax (206) 231-3208; e-mail daniel.jacquet@faa.gov.

SUPPLEMENTARY INFORMATION:

Comments Invited

The FAA invites interested people to take part in this rulemaking by sending written comments, data, or views. The most helpful comments reference a specific portion of the proposed special conditions, explain the reason for any recommended change, and include supporting data.

The FAA will consider all comments received by the closing date for comments and will consider comments filed late if it is possible to do so without incurring delay. The FAA may change these special conditions based on the comments received.

Privacy

Except for Confidential Business Information (CBI) as described in the following paragraph, and other information as described in title 14, Code of Federal Regulations (14 CFR) 11.35, the FAA will post all comments received without change to www.regulations.gov, including any personal information, you provide. The FAA will also post a report summarizing each substantive verbal contact received about these special conditions.

Confidential Business Information

Confidential Business Information (CBI) is commercial or financial information that is both customarily and actually treated as private by its owner. Under the Freedom of Information Act (FOIA) (5 U.S.C. 552), CBI is exempt from public disclosure. If your comments responsive to these special conditions contain commercial or financial information that is customarily treated as private, that you actually treat as private, and that is relevant or responsive to these special conditions, it is important that you clearly designate the submitted comments as CBI. Please mark each page of your submission containing CBI as “PROPIN.” The FAA will treat such marked submissions as confidential under the FOIA, and the indicated comments will not be placed in the public docket of these special conditions. Send submissions containing CBI to the individual listed in the For Further Information Contact section. Comments the FAA receives, which are not specifically designated as CBI, will be placed in the public docket for these special conditions.

Background

On July 5, 2022, Aerocon applied for a supplemental type certificate for the installation of a LDCRC in the Airbus Model A330-300 series airplane. The Airbus Model A330-300 series airplane is a twin-engine, transport-category airplane with a maximum takeoff weight of 533,518 pounds and maximum seating for 440 passengers.

Type Certification Basis

Under the provisions of 14 CFR 21.101, Aerocon must show that the Airbus Model A330-300 series airplane, as changed, continues to meet the applicable provisions of the regulations listed in Type Certificate No. A46NM or the applicable regulations in effect on the date of application for the change, except for earlier amendments as agreed upon by the FAA.

If the Administrator finds that the applicable airworthiness regulations (e.g., 14 CFR part 25) do not contain adequate or appropriate safety standards for the Airbus Model A330-300 series airplane because of a novel or unusual design feature, special conditions are prescribed under the provisions of § 21.16.

Should the applicant apply for a supplemental type certificate to modify any other model included on the same type certificate to incorporate the same novel or unusual design feature, these special conditions would also apply to the other model under § 21.101.

In addition to the applicable airworthiness regulations and special conditions, the Airbus Model A330-300 series airplane must comply with the fuel-vent and exhaust-emission requirements of 14 CFR part 34, and the noise-certification requirements of 14 CFR part 36.

The FAA issues special conditions, as defined in 14 CFR 11.19, in accordance with § 11.38, and they become part of the type certification basis under § 21.101.

Novel or Unusual Design Features

The Airbus Model A330-300 series airplane will incorporate the following novel or unusual design feature:

Installation of a LDCRC under the passenger cabin floor in the cargo compartment.

Discussion

Section 25.819 applies to lower deck service compartments (including galleys) but is not directly applicable to LDCRC. The applicable airworthiness regulations do not contain adequate or appropriate safety standards for this design feature. Special conditions are required for the certification of the LDCRC to supplement part 25.

The LDCRC will be located under the passenger cabin floor in the cargo compartment of the Airbus A330-330 model series airplane. It will be removable from the cargo compartment. Occupancy of the LDCRC will be limited to a maximum of eight crew members, and it will only be occupied in flight, i.e., not during taxi, takeoff, or landing. A smoke detection system, fire extinguishing system, oxygen system, and occupant amenities will be provided.

The LDCRC will be accessed from the main deck via a stair house. The floor within the stair house has an access hatch that leads to stairs, which occupants use to descend into the LDCRC. This hatch locks automatically in the open position when fully opened. In addition, there will be an emergency hatch, which opens directly into the main passenger cabin area. The LDCRC also has a maintenance access/ground loading door, which allows access to and from the cargo compartment. The intended use of this door is to allow cargo loading and maintenance personnel to enter the LDCRC from the cargo compartment when the airplane is on the ground, and not moving.

The proposed special conditions contain the additional safety standards that the Administrator considers necessary to establish a level of safety equivalent to that established by the existing airworthiness standards.

Applicability

As discussed above, these proposed special conditions are applicable to the Airbus Model A330-300 series airplane for which they are issued. Should the applicant apply for a supplemental type certificate to modify any other model included on the same

type certificate to incorporate the same novel or unusual design feature, these special conditions would apply to the other model as well.

Conclusion

This action affects only certain novel or unusual design feature on one model A330-300 airplane. It is not a rule of general applicability and affects only the applicant who applied to the FAA for approval of these features on the airplane.

List of Subjects in 14 CFR Part 25

Aircraft, Aviation safety, Reporting and recordkeeping requirements.

Authority Citation

The authority citation for these special conditions is as follows:

Authority: 49 U.S.C. 106(f), 106(g), 40113, 44701, 44702, and 44704.

The Proposed Special Conditions

Accordingly, the Federal Aviation Administration (FAA) proposes the following special conditions as part of the type certification basis for Airbus Model A330-300 series airplanes as modified by Aerocon Engineering Company.

(a) Occupancy of the LDCRC is limited to a maximum of eight. There must be an approved seat or berth able to withstand the maximum flight loads when occupied for each occupant permitted in the crew rest compartment.

(1) There must be appropriate placards displayed in a conspicuous place at each entrance to the LDCRC compartment to indicate:

(i) The maximum number of occupants allowed.

(ii) That occupancy is restricted to crewmembers that are trained in the evacuation procedures for the crew rest compartment.

(iii) That occupancy is prohibited during taxi, take-off, and landing.

(iv) That smoking is prohibited in the crew rest compartment.

(v) That hazardous quantity of flammable fluids, explosives, or other dangerous cargo is prohibited from the crew rest compartment.

(vi) That the crew rest area must be limited to the stowage of crew personal luggage and must not be used for the stowage of cargo or passenger baggage.

(2) There must be at least one ashtray located conspicuously on or near the entry side of any entrance, usable in-flight, to the crew rest compartment.

(3) There must be a means to prevent passengers from entering the compartment in the event of an emergency or when no flight attendant is present.

(4) There must be a means for any door installed between the crew rest compartment and passenger cabin to be capable of being quickly opened from inside the compartment, even when crowding occurs at each side of the door.

(5) For all doors installed in the evacuation routes, there must be a means to preclude anyone from being trapped inside the compartment. If a locking mechanism is installed, it must be capable of being unlocked from the outside without the aid of special tools. The lock must not prevent opening from the inside of the compartment at any time.

(b) There must be at least two emergency evacuation routes, which could be used by each occupant of the crew rest compartment to rapidly evacuate to the main cabin and be able to be closed from the main passenger cabin after evacuation. In addition—

(1) The routes must be located with one at each end of the compartment, or with two having sufficient separation within the compartment and between the routes to minimize the possibility of an event (either inside or outside of the crew rest compartment) rendering both routes inoperative.

(2) The routes must be designed to minimize the possibility of blockage, which might result from fire, mechanical or structural failure, or persons standing on top of or against the escape route. If an evacuation route utilizes an area where normal movement of passengers occurs, it must be demonstrated that passengers would not impede egress to

the main deck. If a hatch is installed in an evacuation route, the point at which the evacuation route terminates in the passenger cabin should not be located where normal movement by passengers or crew occurs (main aisle, cross aisle, passageway or galley complex). If such a location cannot be avoided, special consideration must be taken to ensure that the hatch or door can be opened when a person, the weight of a ninety-fifth percentile male, is standing on the hatch or door. The use of evacuation routes must not be dependent on any powered device. If there is low headroom at or near an evacuation route, provisions must be made to prevent or to protect occupants of the crew rest area from head injury.

(3) Emergency evacuation procedures, including the emergency evacuation of an incapacitated occupant from the crew rest compartment, must be established. All of these procedures must be transmitted to the operator for incorporation into their training programs and appropriate operational manuals.

(4) There must be a limitation in the airplane flight manual or other suitable means requiring that crewmembers be trained in the use of evacuation routes.

(c) There must be a means for the evacuation of an incapacitated person (representative of a 95th percentile male) from the crew rest compartment to the passenger cabin floor.

The evacuation must be demonstrated for all evacuation routes. A flight attendant or other crewmember (a total of one assistant within the crew rest area) may provide assistance in the evacuation. Additional assistance may be provided by up to three persons in the main passenger compartment. For evacuation routes having stairways, the additional assistants may descend down to one half the elevation change from the main deck to the lower deck compartment, or to the first landing, whichever is higher.

(d) The following signs and placards must be provided in the crew rest compartment:

(1) At least one exit sign, located near each exit, meeting the requirements of

§ 25.812(b)(1)(i) at Amendment 25-58, except that a sign with reduced background area

of no less than 5.3 square inches (excluding the letters) may be utilized, provided that it is installed such that the material surrounding the exit sign is light in color (e.g., white, cream, light beige). If the material surrounding the exit sign is not light in color, a sign with a minimum of a one-inch wide background border around the letters would also be acceptable.

(2) An appropriate placard located near each exit defining the location and the operating instructions for each evacuation route.

(3) Placards must be readable from a distance of 30 inches under emergency lighting conditions.

(4) The exit handles and evacuation path operating instruction placards must be illuminated to at least 160 micro lamberts under emergency lighting conditions.

(e) There must be a means in the event of failure of the aircraft's main power system, or of the normal crew rest compartment lighting system, for emergency illumination to be automatically provided for the crew rest compartment.

(1) This emergency illumination must be independent of the main lighting system.

(2) The sources of general cabin illumination may be common to both the emergency and the main lighting systems if the power supply to the emergency lighting system is independent of the power supply to the main lighting system.

(3) The illumination level must be sufficient for the occupants of the crew rest compartment to locate and transfer to the main passenger cabin floor by means of each evacuation route.

(4) The illumination level must be sufficient with the privacy curtains in the closed position for each occupant of the crew rest to locate a deployed oxygen mask.

(f) There must be means for two-way voice communications between crewmembers on the flight deck and occupants of the crew rest compartment. There must also be public address (PA) system microphones at each flight attendant seat required to be near a floor

level exit in the passenger cabin per § 25.785(h) at Amendment 25-51. The PA system must allow two-way voice communications between flight attendants and the occupants of the crew rest compartment, except that one microphone may serve more than one exit provided the proximity of the exits allows unassisted verbal communication between seated flight attendants.

(g) There must be a means for manual activation of an aural emergency alarm system, audible during normal and emergency conditions, to enable crewmembers on the flight deck and at each pair of required floor level emergency exits to alert occupants of the crew rest compartment of an emergency situation. Use of a public address or crew interphone system will be acceptable, provided an adequate means of differentiating between normal and emergency communications is incorporated. The system must be powered in flight, after the shutdown or failure of all engines and auxiliary power units (APU), or the disconnection or failure of all power sources dependent on their continued operation (i.e., engine & APU), for a period of at least ten minutes.

(h) There must be a means, readily detectable by seated or standing occupants of the crew rest compartment, which indicates when seat belts should be fastened. In the event there are no seats, at least one means must be provided to cover anticipated turbulence (e.g., sufficient handholds). Seat belt type restraints must be provided for berths and must be compatible for the sleeping attitude during cruise conditions. There must be a placard on each berth requiring that seat belts must be fastened when occupied. If compliance with any of the other requirements of these special conditions is predicated on specific head location, there must be a placard identifying the head position.

(i) In lieu of the requirements specified in § 25.1439(a) at Amendment 25-38 that pertain to isolated compartments and to provide a level of safety equivalent to that which is provided occupants of a small, isolated galley, the following equipment must be provided in the crew rest compartment:

(1) At least one approved hand-held fire extinguisher appropriate for the kinds of fires likely to occur.

(2) Two protective breathing equipment (PBE) devices approved to Technical Standard Order (TSO)-C116 or equivalent, suitable for firefighting, or one PBE for each hand-held fire extinguisher, whichever is greater.

(3) One flashlight.

Note: Additional PBEs and fire extinguishers in specific locations, (beyond the minimum numbers prescribed in special condition (i)) may be required as a result of any egress analysis accomplished to satisfy special condition (b)(1).

(j) A smoke or fire detection system (or systems) must be provided that monitors each occupiable area within the crew rest compartment, including those areas partitioned by curtains. Flight tests must be conducted to show compliance with this requirement. Each system (or systems) must provide:

(1) A visual indication to the flight deck within one minute after the start of a fire;

(2) An aural warning in the crew rest compartment; and

(3) A warning in the main passenger cabin. This warning must be readily detectable by a flight attendant, taking into consideration the positioning of flight attendants throughout the main passenger compartment during various phases of flight.

(k) The crew rest compartment must be designed such that fires within the compartment can be controlled without a crewmember having to enter the compartment, or the design of the access provisions must allow crewmembers equipped for firefighting to have unrestricted access to the compartment. The time for a crewmember on the main deck to react to the fire alarm, to don the firefighting equipment, and to gain access must not exceed the time for the compartment to become smoke-filled, making it difficult to locate the fire source.

(1) There must be a means provided to exclude hazardous quantities of smoke or extinguishing agent originating in the crew rest compartment from entering any other compartment occupied by crewmembers or passengers. This means must include the time periods during the evacuation of the crew rest compartment and, if applicable, when accessing the crew rest compartment to manually fight a fire. Smoke entering any other compartment occupied by crewmembers or passengers when the access to the crew rest compartment is opened, during an emergency evacuation, must dissipate within five minutes after the access to the crew rest compartment is closed.

(1) Hazardous quantities of smoke may not enter any other compartment occupied by crewmembers or passengers during subsequent access to manually fight a fire in the crew rest compartment (the amount of smoke entrained by a firefighter exiting the crew rest compartment through the access is not considered hazardous).

(2) There must be a provision in the firefighting procedures to ensure that all door(s) and hatch(es) at the crew rest compartment outlets are closed after evacuation of the crew rest compartment and, during firefighting to minimize smoke and extinguishing agent from entering other occupiable compartments.

(3) During the 1-minute smoke detection time, penetration of a small quantity of smoke from the crew rest compartment into an occupied area is acceptable. Flight tests must be conducted to show compliance with this requirement.

(4) If a built-in fire extinguishing system is used in lieu of manual firefighting, then the fire extinguishing system must be designed so that no hazardous quantities of extinguishing agent will enter other compartments occupied by passengers or crew. The system must have adequate capacity to suppress any fire occurring in the crew rest compartment, considering the fire threat, volume of the compartment and the ventilation rate.

(m) There must be a supplemental oxygen system equivalent to that provided for main deck passengers for each seat and berth in the crew rest compartment. The system must provide an aural and visual warning to warn the occupants of the crew rest compartment to don oxygen masks in the event of decompression. The warning must activate before the cabin pressure altitude exceeds 15,000 feet. The aural warning must sound continuously for a minimum of five minutes or until a reset push button in the crew rest compartment is depressed. Procedures for crew rest occupants in the event of decompression must be established. These procedures must be transmitted to the operator for incorporation into their training programs and appropriate operational manuals.

(n) The following requirements apply to crew rest compartments that are divided into several sections by the installation of curtains or partitions:

(1) To compensate for sleeping occupants, there must be an aural alert that can be heard in each section of the crew rest area compartment that accompanies automatic presentation of supplemental oxygen masks. A visual indicator that occupants must don an oxygen mask is required in each section where seats or berths are not installed. A minimum of two supplemental oxygen masks is required for each seat or berth. There must also be a means by which the oxygen masks can be manually deployed from the flight deck.

(2) A placard is required adjacent to each curtain that visually divides or separates, for privacy purposes, the crew rest area compartment into small sections. The placard must require that the curtain(s) remains open when the private section it creates is unoccupied.

(3) For each crew rest section created by the installation of a curtain, the following requirements of these special conditions must be met with the curtain open or closed:

(i) Emergency illumination (Special condition (e)).

(ii) Emergency alarm system (Special condition (g)).

(iii) Seat belt fasten signal or return to seat signal as applicable (Special condition (h)).

(iv) The smoke or fire detection system (Special condition (j)).

(4) Crew rest compartments visually divided to the extent that evacuation could be affected must have exit signs that direct occupants to the primary stairway exit. The exit signs must be provided in each separate section of the crew rest compartment and must meet the requirements of § 25.812(b)(1)(i) at Amendment 25-58. An exit sign with reduced background area as described in special condition (d)(1) may be used to meet this requirement.

(5) For sections within a crew rest compartment that are created by the installation of a partition with a door separating the sections, the following requirements of these special conditions must be met with the door open or closed:

(i) There must be a secondary evacuation route from each section to the main deck, or alternatively, it must be shown that any door between the sections has been designed to preclude anyone from being trapped inside the compartment. Removal of an incapacitated occupant within this area must be considered. A secondary evacuation route from a small room designed for only one occupant for short time duration, such as a changing area or lavatory, is not required. However, removal of an incapacitated occupant within this area must be considered.

(ii) Any door between the sections must be shown to be openable when crowded against, even when crowding occurs at each side of the door.

(iii) There may be no more than one door between any seat or berth and the primary stairway exit.

(iv) There must be exit signs in each section meeting the requirements of § 25.812(b)(1)(i) at Amendment 25-58 that direct occupants to the primary stairway exit. An exit sign with reduced background area as described in special condition (d).(1) may be used to meet this requirement.

(v) Special conditions (e) (emergency illumination), (g) (emergency alarm system), (h) (fasten seat belt signal or return to seat signal as applicable), and (j) (smoke or fire detection system) must be met with the door open or closed.

(vi) Special conditions (f) (two-way voice communication) and (i) (emergency firefighting and protective equipment) must be met independently for each separate section except for lavatories or other small areas that are not intended to be occupied for extended periods of time.

(o) Where a waste disposal receptacle is fitted, it must be equipped with a built-in fire extinguisher designed to discharge automatically upon occurrence of a fire in the receptacle.

(p) Materials (including finishes or decorative surfaces applied to the materials) must comply with the flammability requirements of § 25.853 at Amendment 25-66. Mattresses must comply with the flammability requirements of § 25.853(b) and (c) at Amendment 25-66.

(q) If a lavatory is installed, all lavatories within the crew rest are required to meet the same requirements as those for a lavatory installed on the main deck except with regard to special condition (j) for smoke detection.

(r) When a crew rest compartment is installed or enclosed as a removable module in part of a cargo compartment or is located directly adjacent to a cargo compartment without an intervening cargo compartment wall, the following applies:

(1) Any wall of the module (container) forming part of the boundary of the reduced cargo compartment, subject to direct flame impingement from a fire in the cargo compartment and including any interface item between the module (container), and the airplane structure or systems, must meet the applicable requirements of § 25.855 at Amendment 25-60.

(2) Means must be provided so that the fire protection level of the cargo compartment meets the applicable requirements of §§ 25.855 at amendment 25-60, 25.857 at amendment 25-60 and 25.858 at amendment 25-54 when the module (container) is not installed.

(3) Use of each emergency evacuation route must not require occupants of the crew rest compartment to enter the cargo compartment in order to return to the passenger compartment.

(4) The aural warning in special condition (g) must sound in the crew rest compartment in the event of a fire in the cargo compartment.

(s) Means must be provided to prevent access into the Class C cargo compartment during all airplane operations and to ensure that the maintenance door is closed during all airplane flight operations.

(t) All enclosed stowage compartments within the crew rest that are not limited to stowage of emergency equipment or airplane-supplied equipment (e.g., bedding) must meet the design criteria given in the table below. As indicated by the table below, this special condition does not address enclosed stowage compartments greater than 200 ft³ in interior volume. The in-flight accessibility of very large, enclosed stowage compartments and the subsequent impact on the crewmember's ability to effectively reach any part of the compartment with the contents of a hand fire extinguisher will require additional fire protection considerations similar to those required for inaccessible compartments such as Class C cargo compartments.

Stowage Compartment Interior Volumes

Fire protection features	less than 25 ft³	25 ft³ to 57 ft³	57 ft³ to 200 ft³
Materials of Construction ¹	Yes	Yes	Yes
Detectors ²	No	Yes	Yes
Liner ³	No	No	Yes
Locating Device ⁴	No	Yes	Yes

1. Materials of Construction: The material used to construct each enclosed stowage compartment must at least be fire resistant and must meet the flammability standards established for interior components per the requirements of § 25.853. For compartments less than 25 ft³ in interior volume, the design must ensure the ability to contain a fire likely to occur within the compartment under normal use.

2. Detectors: Enclosed stowage compartments equal to or exceeding 25 ft³ in interior volume must be provided with a smoke or fire detection system to ensure that a fire can be detected within a one-minute detection time. Flight tests must be conducted to show compliance with this requirement. Each system (or systems) must provide:

- (a) A visual indication in the flight deck within one minute after the start of a fire;
- (b) An aural warning in the crew rest compartment; and
- (c) A warning in the main passenger cabin. This warning must be readily detectable by a flight attendant, taking into consideration the positioning of flight attendants throughout the main passenger compartment during various phases of flight.

3. Liner: If it can be shown that the material used to construct the stowage compartment meets the flammability requirements of a liner for a Class B cargo compartment, then no liner would be required for enclosed stowage compartments equal to or greater than 25 ft³ in interior volume but less than 57 ft³ in interior volume. For all enclosed stowage compartments equal to or greater than 57 ft³ in interior volume but less than or equal to 200 ft³, a liner must be provided that meets the requirements of § 25.855 at Amendment 25-60 for a class B cargo compartment.

4. Location Detector: Crew rest areas which contain enclosed stowage compartments exceeding 25 ft³ interior volume and which are located away from one central location such as the entry to the crew rest area or a common area within the crew rest area would require additional fire protection features and/or devices to assist the firefighter in determining the location of a fire.

Issued in in Kansas City, Missouri, on December 8, 2023.

Patrick R. Mullen,
 Manager, Technical Policy Branch,
 Policy and Standards Division,
 Aircraft Certification Service.

[FR Doc. 2023-27396 Filed: 12/12/2023 8:45 am; Publication Date: 12/13/2023]